UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202 – 2733

MAY -6 2016

Mr. Dave Martin
Cabinet Secretary
New Mexico Energy, Minerals, and
Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Dear Mr. Martin:

Enclosed is the Environmental Protection Agency's end-of-year review of the New Mexico Oil Conservation Division's (OCD) Underground Injection Control (UIC) program for fiscal year 2015 (FY15). The report includes tables summarizing NMOCD's efforts in meeting key work plan objectives and discussions of some ongoing initiatives.

The cooperation and assistance received during the evaluation process and throughout the year is appreciated. We recognize the fine work of NMOCD staff in implementing the UIC program and look forward to working with you in the continued protection of New Mexico's ground water resources. Please contact me at (214) 665-7150, or have your staff call Ms. Lisa Pham at (214) 665-8326, if you have any program questions or Mr. Michael Vaughan at (214) 665-7313 for any grants questions.

Sincerely,

William K. Honker, P.E.
Director
Water Division

Enclosure

cc w/encl: Daniel Sanchez, UIC Director
New Mexico Oil Conservation Division

EPA Region 6
End-of-Year Review
for the
Oil Conservation Division (OCD) of the
New Mexico Energy, Minerals, and Natural Resources Department
Underground Injection Control (UIC) Program
State Fiscal Year 2015 (FY15)
July 1, 2014 through June 30, 2015

I. Introduction

The Oil Conservation Division of the New Mexico Energy, Minerals, and Natural Resources Department (EMNRD) is the lead agency for the State's Underground Injection Control (UIC) program. The OCD has jurisdiction over Class I non-hazardous wells permitted to receive oilfield non-exempt refinery wastes, all Class II wells, Class III brine solution mining wells, Class V wells.

The EPA granted primacy for Class II wells in New Mexico directly to the Oil Conservation Division (OCD) in 1982 and all other UIC types to the New Mexico Water Quality Control Commission (WQCC) in 1983. The oil field and geothermal related WQCC UIC wells are administered by the OCD. The non-oil field related UIC wells are administered by the New Mexico Environment Department.

This annual review considers all activities of the approved State UIC program administered by the OCD, including those identified in the grant work plan as well as other program activities, for the period July 1, 2014, through June 30, 2015. The total New Mexico UIC grant awarded in FY15 was $284,000. However, $25,992.23 of these funds were not drawn down. So, NM only used $258,007.77 of these funds.

II. Work Plan Objectives and Activity Level

Well Inventory

1. Class II wells - The OCD Engineering Bureau and District Office Inspectors have jurisdiction over Class II wells injecting oilfield exempt wastes and/or wells involved in enhanced oil recovery (EOR) and Class II LPG Storage wells where the gas is liquid at STP. As of July 31, 2015, the total inventory was 4587, which included 4421 active (3526 EOR and 895 saltwater disposal (SWD) wells) and 166 temporarily abandoned wells. In addition, there were 2940 wells classified as "plugged, site released". Figure 1 shows the Class II well inventory variation for the last five years. Class II LPG Storage wells remained at zero.

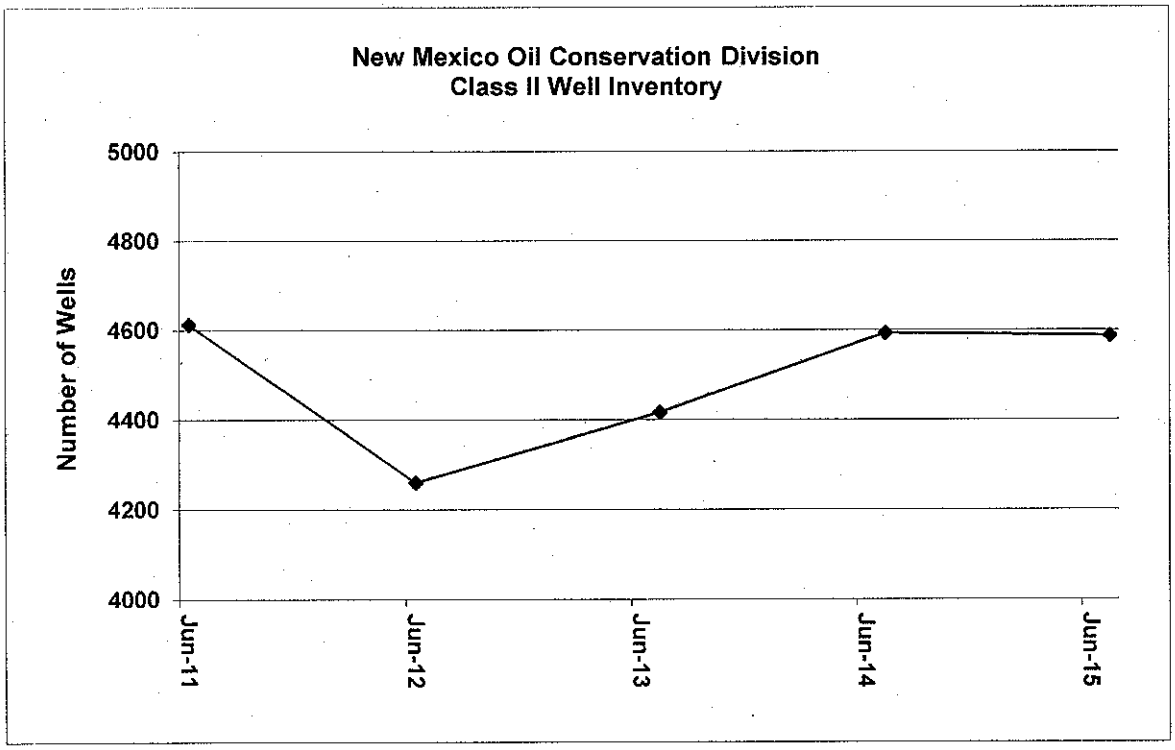


Figure 1: Class II active and temporarily abandoned injection well inventory

2. Class I, III, and V wells – The OCD Environmental Bureau has jurisdiction over Class I non-hazardous wells injecting oilfield non-exempt wastes, Class III brine solution mining wells where fresh water is injected into a salt formation to produce high density brine for drilling, Class V geothermal injection wells where geothermal reservoir temperature is less than or equal to 250°F, and any other Class V wells used in the oil, gas and geothermal industries. Table 1 reports the OCD Class I, III, and V well inventory.

During FY15, the total number of Class I non-hazardous active disposal wells remained at five with five permits and three different operators. There are currently 10 active Class III wells at nine permitted brine-making facilities. Eight of these facilities use a single well for both freshwater injection and brine extraction. The ninth facility utilizes a two-well system: one well for freshwater injection and another for extraction. During FY 12, OCD issued a new brine well permit for a facility intending to use a single well for injection and production, but that well has yet to be drilled due to business considerations of the permittee. With its Reclamation Fund, the OCD continues to monitor the brine cavern located within the Carlsbad city limits.

There are currently three Class V Geothermal wells under OCD's jurisdiction. In July 2009, OCD permitted Raser Technologies to construct high temperature geothermal injection wells to produce binary cycle system commercial power near Animas, New Mexico. As a result, two new injection wells and one production well were constructed. In addition, one of the existing well was reworked and converted into an injection well. In April 2011, Raser Technologies filed for bankruptcy and after re-emerging from bankruptcy, Raser Technologies became Cyrq Energy. Ownership was transferred to Lightning Dock

Geothermal HI-01 LLC in 2013. The injection wells and commercial geothermal power plant were brought online in December 2013. After installing a higher capacity submersible pump, Cyrq Energy, Inc. has installed a fourth injection well and stimulated some existing injection wells in order to increase power generation. This new well is currently under review by OCD for authorization to inject. Also, OCD has received applications for four new disposal well permits from the operator.

Table 1 - Class I, III, and V inventory

	Class I Non-hazardous			Class III			Class V		
Date Tabulated	AC[1]	TA[2]	PA[3]	AC	TA	PA	AC	TA	PA[4]
6/30/2011	5	0	0	10	0	24	0	0	27
6/30/2012	5	0	0	10	0	24	0	0	27
6/30/2013	5	0	0	10	0	24	0	0	27
6/30/2014	5	0	0	10	0	24	3	0	27
6/30/2015	5	0	0	10	0	24	3	0	27

[1] - Active
[2] - Temporarily Abandoned
[3] - Plugged and Abandoned
[4] - It is the policy of the Environmental Bureau to close Class V wells discovered at oil, gas and geothermal facilities that threaten drinking water. Since the program started in 1997, cumulatively 27 have been closed by this program.

Testing

Major workplan field activities are required by regulations and/or guidance. Specific field activities for the three major classes of injection wells within the OCD UIC program are presented in Table 2.

Table 2- FY15 Mechanical Integrity Testing (10/1/14 to 6/30/15)

Activity	Well Class	Work Plan Target	Accomplished During FY15	Percent of Goal
Annulus Pressure Tests*	I	5	2	40.0
	II	880	968	110.0
	III	0	0	0.0

* Based on OCD submitted end-of-year report (October 1, 2014 to June 30, 2015)

1. Class I non-hazardous wells – According to NMOCD, based on the UIC Primacy Memorandum of Agreement with EPA, OCD is required to complete at least one Fall-off

Test before permit renewal or every 5 years. However, Region 6 could not verify this after carefully reviewing the MOA that was signed between the region and New Mexico in April 1983. Also, the modified Fall-off Testing requirements for Class I non-hazardous wells of NMOCD is less stringent than the federal regulatory requirements in 40 CFR 146.13(d)(1). On October 6, 2015, the Region and NMOCD held a conference call to discuss this issue and NMOCD proposed to resolve this by adding the annual test requirement in their Class I permits instead of proceeding the lengthy process of changing their regulations. Subsequently, NMOCD has notified operators about this change.

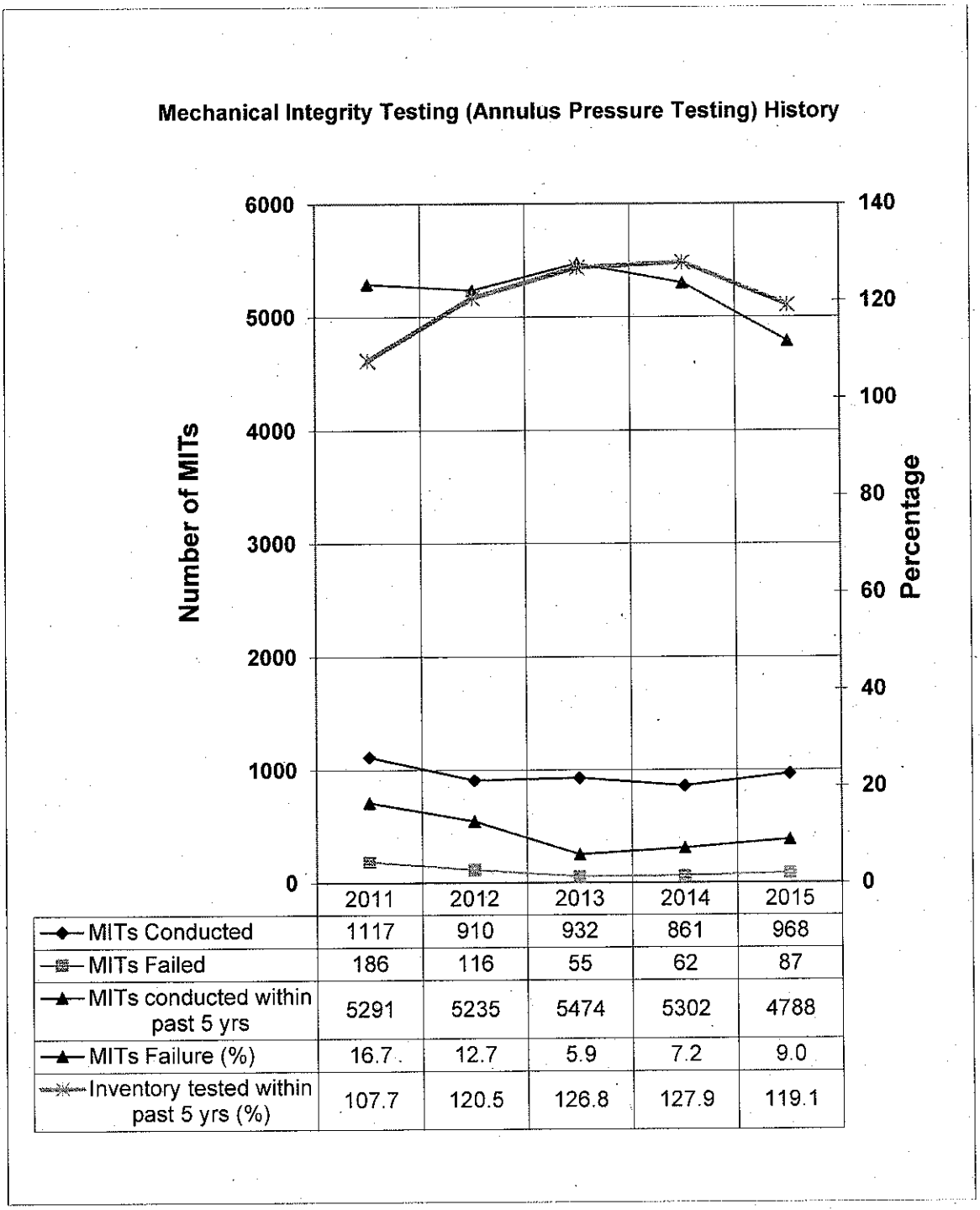
Only two Class I non-hazardous wells were tested in FY15; as a result, OCD accomplished only 40 percent of its goal.

2. Class II wells – During FY15, the failure rate for both annulus pressure and bradenhead tests was 2.8 percent. To address well integrity problems, the Bureau issued a notice of violation and followed up with a letter to the owners of these wells. In addition, OCD continues to monitor their progress until they are in compliance.

- Annulus pressure tests (APTs) – OCD continues to place high emphasis on conducting and witnessing APTs, and is again commended for its efforts implementing this important component of the UIC program. As shown in Figure 2, the state reported 968 tests were conducted in FY15. This was exceeded the target of 880 that the Bureau had set. Figure 2 shows the annulus pressure test failure rate in FY15 was 9.0 percent. All regularly scheduled Class II five-year MITs were witnessed.

- Bradenhead tests – The OCD reported that in FY15, 3734 bradenhead tests were conducted and the failure rate for these tests is 1.3% or 47 wells. OCD almost met its target of 4004 wells tested. Notably, these bradenhead tests are not required by Federal regulations but OCD conducts them because they are helpful for earlier detection of mechanical integrity problems in Class II wells.

3. Class III wells - The Environmental Bureau did not conduct any mechanical integrity tests (MITs) on Class III wells during this fiscal year. Only one of the total 10 Class III wells in OCD inventory is overdue and it will be addressed by the end of this year. Notably, while EPA requires MIT every five years or after any well completion work, OCD requires formation or salt cavern testing on an annual basis.



	2011	2012	2013	2014	2015
MITs Conducted	1117	910	932	861	968
MITs Failed	186	116	55	62	87
MITs conducted within past 5 yrs	5291	5235	5474	5302	4788
MITs Failure (%)	16.7	12.7	5.9	7.2	9.0
Inventory tested within past 5 yrs (%)	107.7	120.5	126.8	127.9	119.1

Figure 2: Mechanical Integrity Tests (Annulus Pressure Tests) for Class II wells

Inspections

Similar to MIT tests, the OCD far exceeded its projected target of 1567 Class II wells for inspection during this fiscal year. The state reported 5776 inspections in FY15. Figure 3 summarizes total number of Class II wells inspected by the OCD during each of the last five

years.

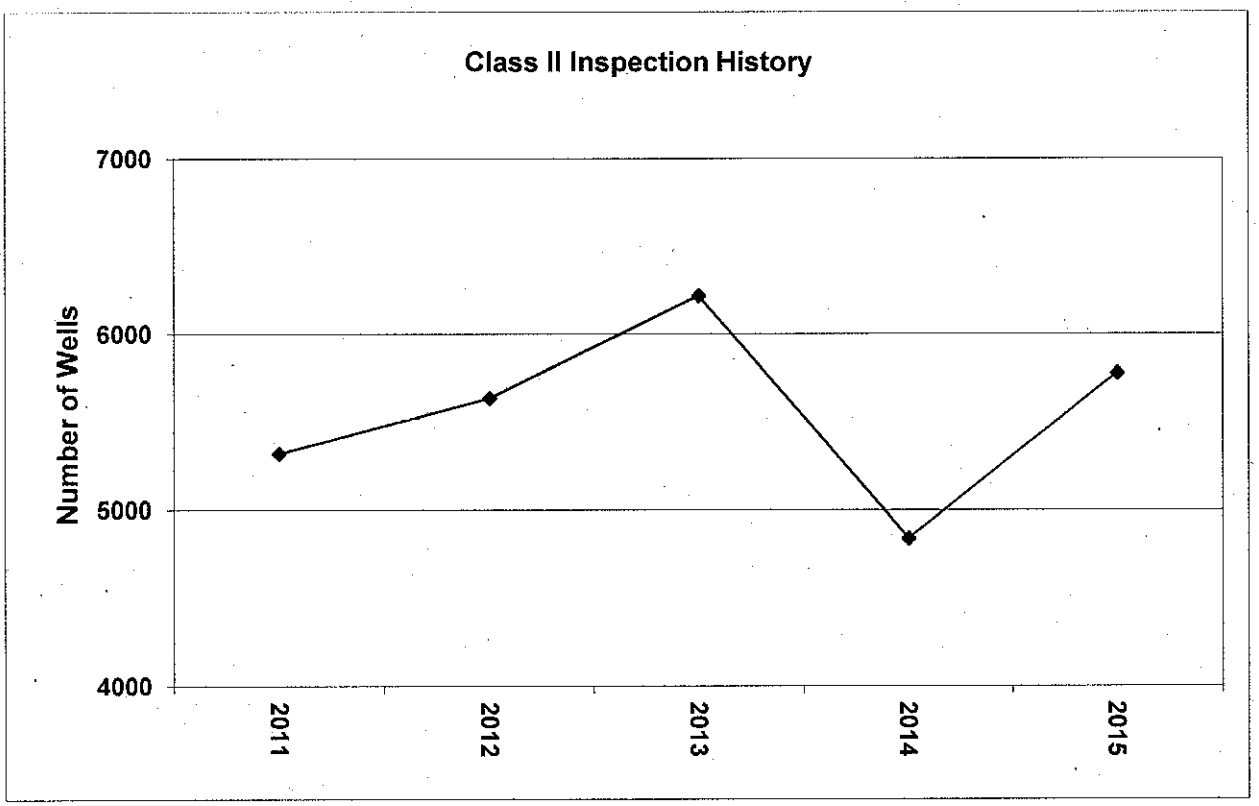


Figure 3: Inspections for Class II wells

Permitting

In its FY15 workplan, the OCD estimated that 100 permit applications would be received, 240 Class II injection wells would be authorized, and 24 major permit modifications would be required. The actual numbers of permits received, modified, and denied are shown in Table 3.

Table 3 - FY15 Permit Activities (10/1/14 to 6/30/15)

Activity	Salt Water Disposal	Enhanced Oil Recovery	Total Permits	Number of Wells Permitted
Permit Applications Received	114	17	131	193
Major Permit Modifications	8	1	9	-
Permits Denied	15	1	16	-

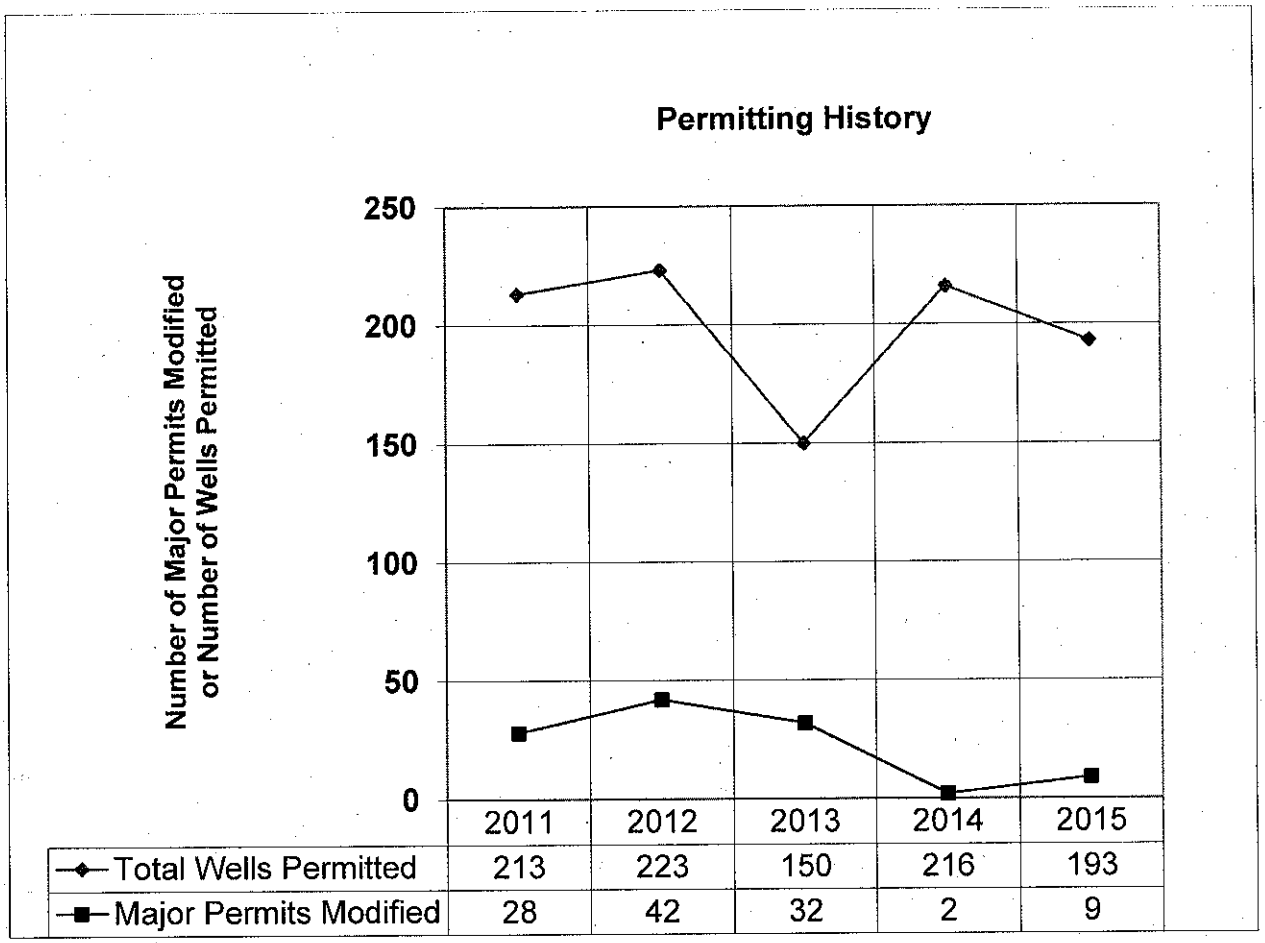


Figure 4: Permitting Activity for Class II Wells

Figure 4 shows the number of wells permitted and the number of major permits modified by OCD during the last five years. During FY15, the total number of wells permitted decreased slightly while the number of major permits modified increased almost five times compared to that of FY14. However, the latter number was still small during the last two fiscal years.

Work Plan Deliverables

Table 4 lists the deliverables submitted to Region 6 for FY15. The Quality Management Plan (QMP) and Quality Assurance Project Plan (QAPP) are updated annually by amendment, including new concurrence signature pages and current organizational charts.

Table 4 - FY15 Grant Work Plan Deliverables

Deliverables	Due Date	Received
FY 2015 Final Financial Status Report	09/30/15	10/30/15
Annual UIC Program Report (FY15)	07/30/15	08/06/15

UIC Annual Inventory (FY15)	01/30/15	01/30/15
7520 Reports	4/30/15, 10/30/15	5/4/15, 10/30/15
Update of QMP	07/29/15	06/18/15
Update of QAPP	09/29/15	08/04/15
Final FY 2016 Work Plan	05/01/15	05/01/15

Enforcement

Table 5 summarizes the number of violations of Class II wells discovered by the OCD from October 1, 2014 to September 30, 2015 and reported on EPA Form 7520-2A. Except a very small increase in the number of MIT violations, all other type of violations decreased significantly during this fiscal year.

Table 5 - Summary of Class II Well Violations (10/1/14 – 9/30/15)

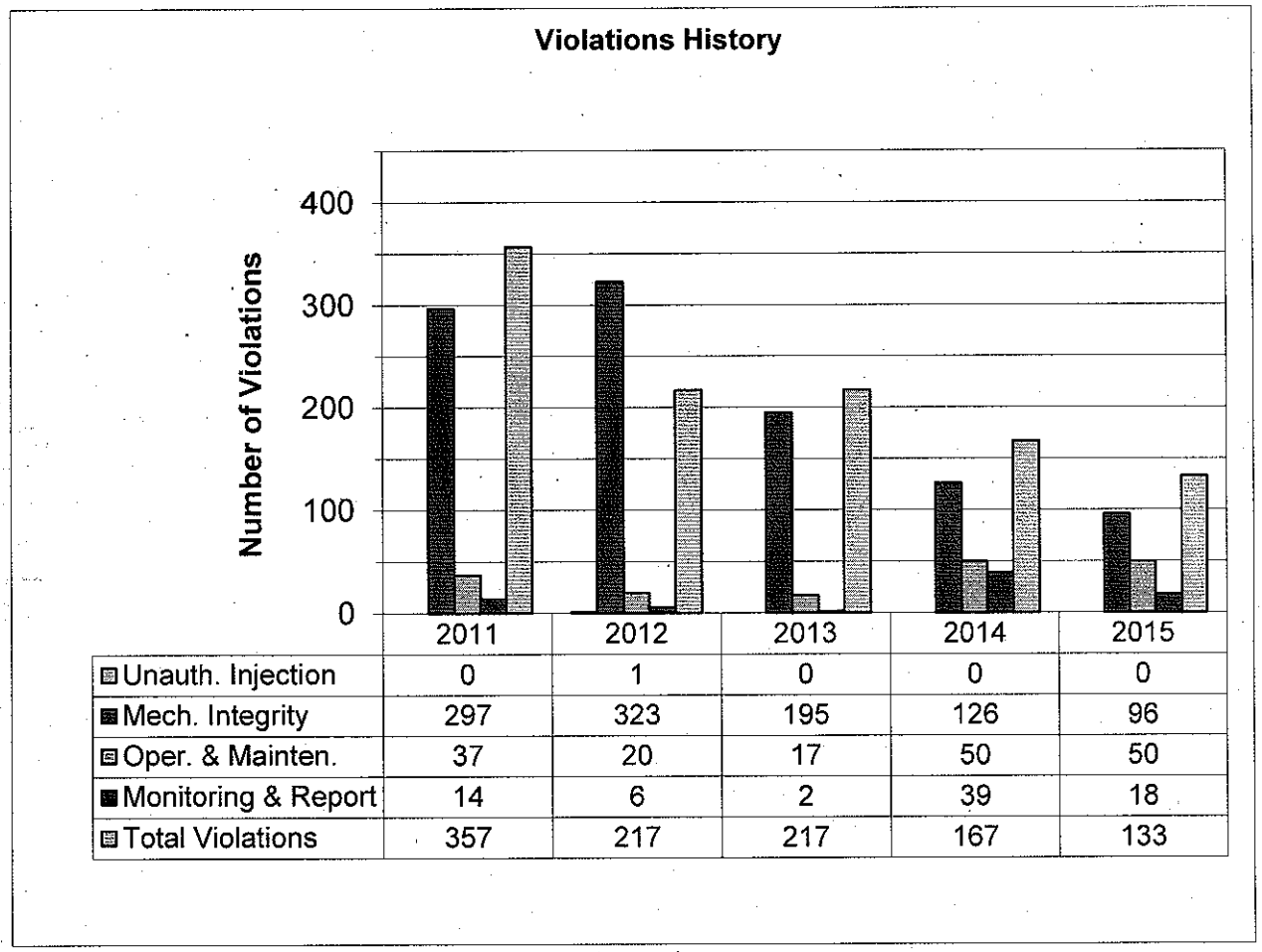
Item	Salt Water Disposal	Enhanced Oil Recovery	Total
Unauthorized Injection	0	0	0
Mechanical Integrity	39	78	117
Operation & Maintenance	3	9	12
Plugging & Abandonment	1	2	3
Monitoring & Reporting	1	0	1
Total of Violations	44	89	133

Table 6 - Summary of Class II Well Enforcement Activities (10/1/14 – 6/30/15)

Item	Salt Water Disposal	Enhanced Oil Recovery	Total
Number of wells w/violations	88	110	198
Number of wells w/enforcement action	19	37	56
Notices of violation	0	0	0
Other Enforcement Actions (e.g. emergency inspections)	17	36	53
Wells shut-in	2	1	3
Number of wells returned to compliance	82	129	211

Table 6 shows 198 Class II wells with violations and 56 wells with enforcement actions. During FY15, OCD did not issue any notice of violation but performed 53 other enforcement actions, mainly emergency inspections. Also, there were 3 wells to be shut-in. As of June 30, 2015, 211 wells with violations have been returned to compliance. The discrepancy between the

number of wells with violations and returned to compliance caused by a delay between the issuance of violations and the completion of the action to address the violation. This is especially common with EOR wells on federal lands that require approval of the Bureau of Land Management for the plugging plan (and well work overs for repairs) under their Onshore Oil and Gas Rule No. 2. Additionally, some of the outstanding wells are involved in OCD hearing proceedings (as required under OCD's adjudication process), or may have required submittal of amended applications to address the violations as a result of unreported major modifications (which were pending at the end of the reporting period).



	2011	2012	2013	2014	2015
Unauth. Injection	0	1	0	0	0
Mech. Integrity	297	323	195	126	96
Oper. & Mainten.	37	20	17	50	50
Monitoring & Report	14	6	2	39	18
Total Violations	357	217	217	167	133

Figure 5: Violations History

Current Initiatives

1. Injection Reporting Compliance – As of June 30, 2015, OCD identified 80 Class II SWD wells that have not been reported on the C-115 Operators' Monthly Report from 55 operators. Only 34 of these wells are covered by an Agreed Compliance Order under 4 operators who have agreed to bring their wells into compliance over a specified period of

time. The OCD is working with all non-compliant operators so that injection volume records may be brought up to date.

2. Protectable Waters Within Disposal Intervals – The effort to identify and protect fresh waters within any proposed disposal interval is continuous. The most significant occurrence of protectable waters with disposal intervals is the Capitan Reef aquifer in southeast New Mexico. Therefore, OCD reviews all applications for salt water disposal in this vicinity with emphasis on assessing the lateral distribution of confining layers that are identified in the application packages. In addition, OCD considers inputs from the New Mexico State Land Office and the Bureau of Land Management.

   Due to the drop in oil prices, exploratory activities in the Delaware Basin of southeast New Mexico has decreased; however, OCD continues to receive injection applications with renewed activity in older water flood projects, the addition of treated acid gas disposal wells in support of gas processing facilities, and limited gas storage projects.

SUMMARY

OCD continues to administer a solid UIC program to protect underground sources of drinking water in the state. Of particular note is the OCD's strong field presence, including both general inspection and witnessing of MITs.